UNITED STATES
DEPARTMENT OF INTERIOR
BUREAU OF LAND MANAGEMENT
VALE DISTRICT OFFICE

DECISION RECORD

Soldier Creek Road Maintenance Material Sites
Environmental Assessment DOI-BLM-OR-V060-2011-071

Background:

The Soldier Creek Road (SCR) traverses 28 miles from U.S. Highway 95 approximately 15 miles west of Jordan Valley and continues in a southerly direction to the Fenwick Ranch Road. The Fenwick Ranch Road continues northeast about 16 miles to the Idaho border and about five miles southwest to the Three Forks Recreation Area on the Owyhee River (See Map 1). The SCR is the primary transportation route providing access to the central portion of the Jordan Resource Area for outdoor enthusiasts, upland bird and big game hunters, livestock operators, access to private land, and BLM Fire and administrative access.

The SCR was constructed in the early 1960's and is a graded, drained, and largely natural surface, all-weather road. Regular road maintenance has consisted of seasonal surface grading, culvert repair, and grading and placing gravel in areas prone to deterioration during wet weather. The last major upgrade to the road occurred in 1982, when a joint maintenance investment with Malheur County placed crushed rock over the surface of the SCR and improved culvert installations. Borrow excavations adjacent to the road route supplied the rock material for the upgrade.

The need to develop reliable, local sources of rock aggregate has become increasingly more important as fuel and equipment operating costs continue to rise. The nearest BLM Community pits are the Greeley Community Pit at Rock Creek in T. 31 S., R 44 E., Section 22 NE¼ near the northern end of the SCR and the Soldier Creek Community Pit near Soldier Creek in T. 32 S., R 44 E., Section 22 NE¼. These are both sources of sand and gravel that is unsuitable as road base material. Currently, the nearest existing community pit containing road base rock material is the Coburn Community Pit (rock aggregate) in T. 32 S., R. 46 E., Sections 28 and 29 which is 14 miles from the southern end of the SCR and the Arock Rip-Rap Community Pit in T. 31 S., R. 43 E., Section 9 which is 7.6 miles from the northern end and 35.6 miles from the southern end of the SCR.

Purpose and Objectives:

The purpose of the proposed action as analyzed in the Environmental Assessment (EA) is to develop three sites with favorable geologic characteristics to provide rock aggregate for maintenance of the SCR. The Vale District BLM is tasked with maintaining the SCR to provide safe public and administrative access to public lands in the southeastern portion of the District. The maintenance of the SCR requires that rock material is

available within a reasonable distance to the work area. Existing rock sources from designated community pits are between 11 and 40 miles from the primary road maintenance area. The Vale District BLM wants to develop more material sites along the SCR to allow cost effective and efficient maintenance of BLM transportation plan roads. Fuel consumption, equipment maintenance costs, and project duration would be reduced by shortening the transportation distance of rock materials to a work area. Ideally, a maximum haulage distance of five miles from the aggregate source to the road maintenance site would result in improved operational efficiency and reduced carbon emissions (EA, pg. 33).

The material sites would be developed to provide aggregate material for the resurfacing and subsequent maintenance of the SCR. The SCR continues southwest to a point near the Idaho border and the potential exists that a portion of this material would be used by Malheur County, Jordan Valley Road District, for maintenance of the SCR into the area between Three Forks and the western Idaho Border area along the Fenwick Ranch Road.

Decision:

This Decision Record documents my approval to implement a modified version of Alternative 2 (Proposed Action). Instead of developing all three of the proposed sites analyzed in Alternative 2, this decision will implement the creation of only one material site along the SCR using the mitigation measures and operating stipulations established in Environmental Assessment DOI-BLM-OR-V060-2011-071 (EA) and the corresponding Finding of No Significant Impact (FONSI). The Southeastern Oregon Resource Management Plan (SEORMP, Sept. 2002) Best Management Practices (Appendix O) shall also be in effect for the duration of the Project. Standard procedure within 43 CFR 3604.12 (a) requires that BLM document material extraction by means of a Free-Use Permit.

This modified proposed action will create one material site at the Slipper Reservoir location that will not exceed 10 acres of surface disturbance for the excavation, stockpile operations, and access road. The portion of the site designed for rock extraction will be cleared of vegetation and available growth medium will be stockpiled adjacent to the site. An air-track drill rig will be used to construct holes to depths of 20 to 40 feet which will be subsequently loaded with blasting agent. The blasting agent will be ANFO (ammonium nitrate and fuel oil) which will fragment the rock to a size fraction amenable to loading operations (typically 15-18 inches in diameter). The fragmented rock will be pushed by a dozer into a pile and then loaded into a portable crushing unit to reduce the rock material to a size required for the road surfacing and maintenance. All blasting operations will be supervised by an Oregon State-licensed blasting professional. The crushed rock will be stockpiled in two size fractions, 3-inch minus and 1-inch minus, within the material site until needed for road maintenance.

The Slipper Reservoir site is within the geographic center of the road maintenance area and 0.5 miles from the SCR to minimize the material haul distance (See Vicinity Maps No.1 and No.3). In the future, the site will be accessed only by BLM to obtain rock

material for periodic road maintenance. Material site development and aggregate production will require approximately one month to complete and subsequent road maintenance will occur over three months not exceeding the limitations prescribed for sage-grouse.

The elimination of two of the proposed sites will require aggregate production from the existing Coburn Community Pit to facilitate road maintenance at the eastern end of the SCR.

Decision Rationale:

The decision to approve the modified Proposed Action is based on the analysis documented in the EA combined with the rationale developed within the Finding of No Significant Impact, and consideration for comments expressed during the Public Comment period (See Attachment 1 for Comments and BLM Responses).

The modified Proposed Action was selected because it meets the purpose and need of the project and limits activity associated with rock extraction activities within Preliminary General sage-grouse habitat (PGH) or adjacent to Preliminary Priority sage-grouse habitat (PPH). The criteria used in choosing the modified proposed action included safety, environmental impacts, cost, and whether or not the action meets the project purpose and need, and complies with the BLM management goals for road maintenance requirements.

Authority and Conformance with Land Use Plans, Policies and Programs:

Implementing the proposed action with identified mitigation and stipulations, meets the criteria described in the Federal Land Policy and Management Act of 1976 to authorize the disposal of mineral materials and the 43 Code of Federal Regulations (CFR) 3600 Mineral Material Disposal Regulations. Sections of 43 CFR 3600 state in whole or in part:

43 CFR 3601.1 The regulations in this part establish procedures for the exploration, development, and disposal of mineral material resources on the public lands, and for the protection of the resources and the environment. The regulations apply to permits for free use and contracts for sale of mineral materials.

43 CFR 3601.3 (a) BLM's authority to dispose of sand, gravel, and other mineral and vegetative materials that are not subject to mineral leasing or location under the mining laws is the Act of July 31, 1947, as amended (30 U.S.C. 601 *et seq.*), commonly referred to as the Materials Act. This authority applies to sale and free use of these materials. BLM's authority to allow removal of limited quantities of petrified wood from public lands without charge is section 2 of the Act of September 28, 1962 (Pub. L. 87-713, 76 Stat. 652).

43 CFR 3601.3 (b) Section 302 of the Federal Land Policy and Management Act of 1976 (FLPMA) (43 U.S.C. 1732) provides the general authority for BLM to manage the use, occupancy, and development of the public lands under the principles of multiple use and sustained yield in accordance with the land use plans that BLM develops under FLPMA.

The proposed action is also in accordance with the SEORMP which provides for the disposal of common variety minerals in order to meet public demand (SEORMP, pg. 31, 37, and Table W-1).

Right of Appeal:

This decision may be appealed to the Interior Board of Land Appeals, Office of the Secretary, in accordance with the regulations contained in 43 CFR, Part 4 and Form 1842-1. If an appeal is filed, your notice must be filed in the **Vale District Office, 100 Oregon Street, Vale, Oregon, 97918** within 30 days of receipt. The appellant has the burden of showing that the decision appealed is in error.

Filing an appeal does not by itself stay the effectiveness of a final BLM decision. If you wish to file a petition for a stay of the effectiveness of this decision, pursuant to 43 CFR 4.21, the petition for stay must accompany your notice of appeal. If you request a stay, you have the burden of proof to demonstrate that a stay should be granted.

A petition for stay is required to show sufficient justification based on the standards listed below.

Standards for Obtaining a Stay

Except as otherwise provided by law or other pertinent regulation, a petition for a stay of a decision pending appeal shall show sufficient justification based on the following standards:

1. The relative harm to the parties if the stay is granted or denied.
2. The likelihood of the appellant's success on the merits.
3. The likelihood of immediate and irreparable harm if the stay is not granted.
4. Whether or not the public interest favors granting the stay.

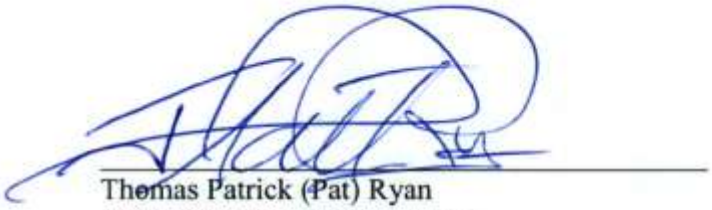
A notice of appeal electronically transmitted (e.g. email, facsimile, or social media) will not be accepted as an appeal. Also, a petition for stay that is electronically transmitted (e.g., email, facsimile, or social media) will not be accepted as a petition for stay. Both of these documents must be received on paper at the office address above.

Persons named in the *Copies sent to:* sections of this decision are considered to be persons "named in the decision from which the appeal is taken." Thus, copies of the notice of appeal and petition for a stay must also be served on these parties, in addition to any party who is named elsewhere in this decision (see 43 CFR 4.413(a) & 43 CFR 4.21(b)(3)) and the appropriate Office of the Solicitor (see 43 CFR 4.413(a), (c)) **Office of the Solicitor, US Department of the Interior, Pacific Northwest Region, 805 SW**

Broadway, Suite 600, Portland, Oregon 97205, at the same time the original documents are filed with this office. For privacy reasons, if the decision is posted on the internet, the *Copies sent to:* section will be attached to a notification of internet availability and persons named in that section are also considered to be persons "named in the decision from which the appeal is taken."

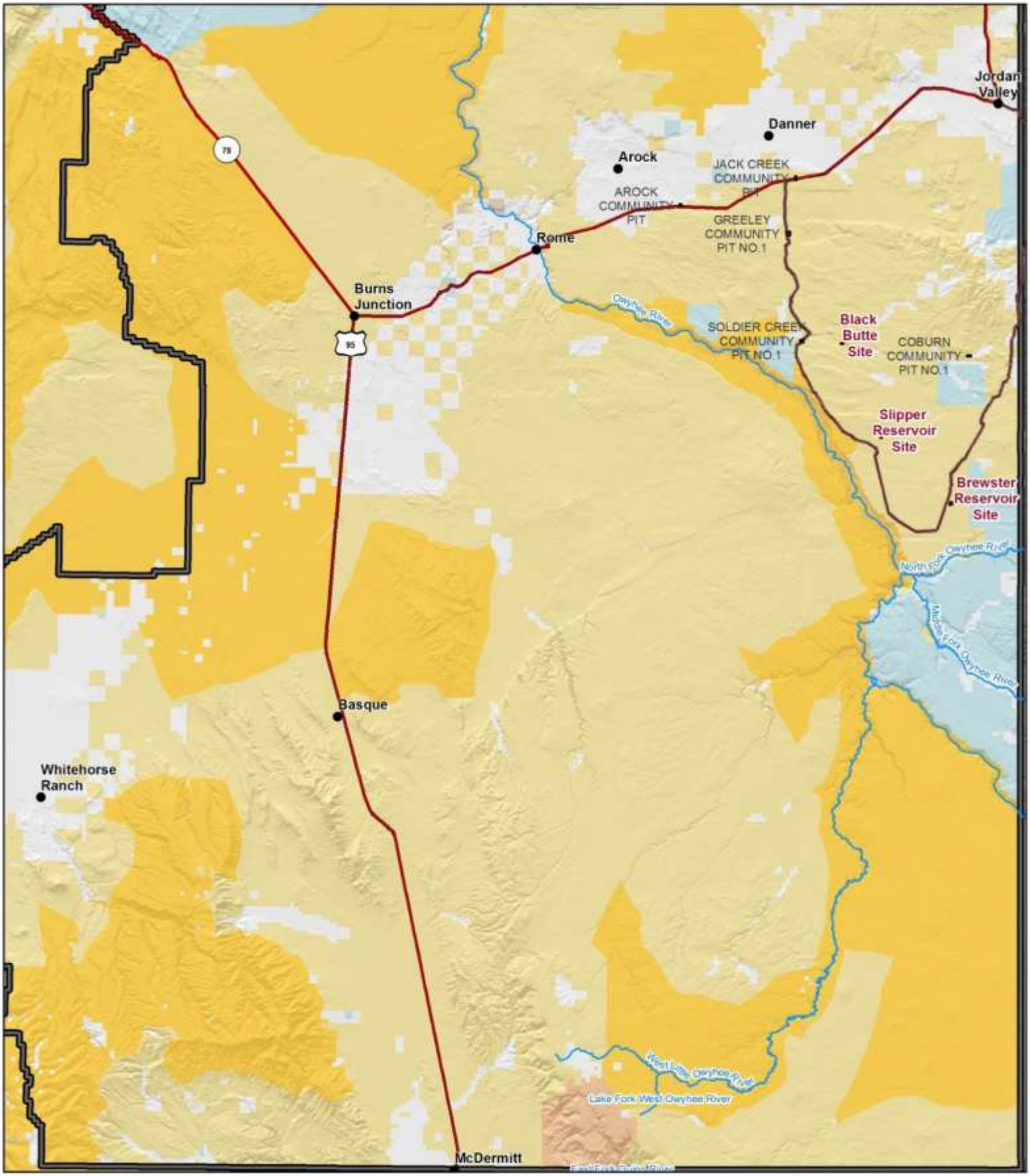
Any person named in the decision, *Copies sent to:* section of the decision, or who received a notification of internet availability that receives a copy of a petition for a stay and/or an appeal and wishes to respond, see 43 CFR 4.21(b) for procedures to follow.

For any questions concerning this project, please contact the Project Lead, Jon Westfall at the Vale District Office at (541) 473-3144.



Thomas Patrick (Pat) Ryan
Jordan/Malheur Field Manager
Vale District BLM

5/22/15
Date



Legend

- Potential Material Sites
- Authorized Material Pits
- Access Road (Soldier Creek Rd)
- INT
- STH
- USH
- Major Rivers
- Resource Area Boundary
- District Boundary
- Wilderness Study Area
- Bureau of Land Management
- U.S. Forest Service
- National Park Service
- U.S. Fish and Wildlife Service
- Bureau of Indian Affairs
- Other Federal
- State
- Local Government
- Private/Unknown

0 5 10 20 Miles

Soldier Creek Road Project
Proposed Material Sites
Jordan Resource Area Vicinity
Map 1

U.S. Department of Interior
Bureau of Land Management

Vale District
March 19, 2013

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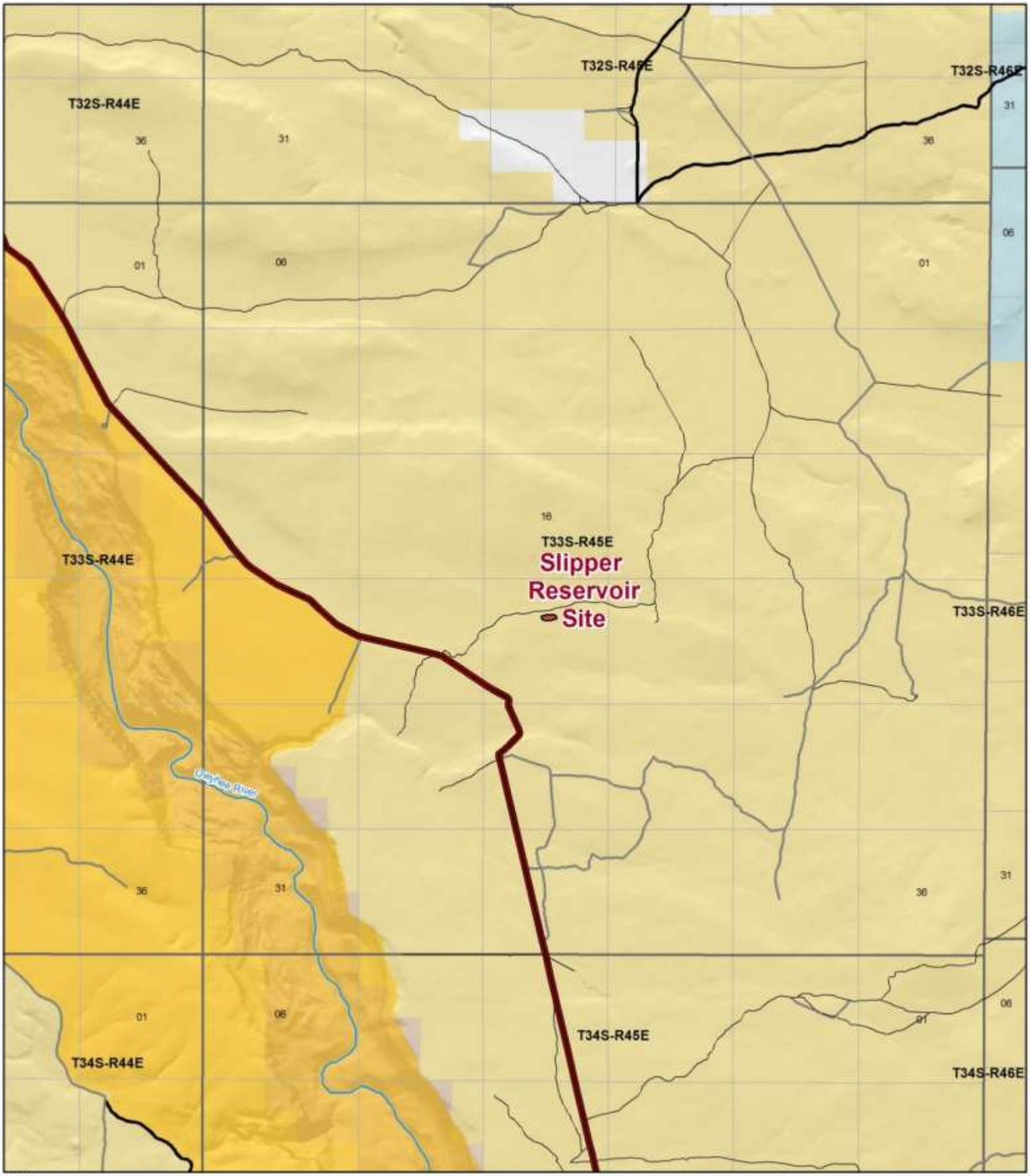

Legend

- Slipper Reservoir Site
- Authorized Material Pits
- Access Road (Soldier Creek Rd)
- County route
- Bureau of Land Management
- Forest Service
- Private road (no symbol)
- Not Known
- Major Rivers
- Wilderness Study Area
- Bureau of Land Management
- U.S. Forest Service
- National Park Service
- U.S. Fish and Wildlife Service
- Bureau of Indian Affairs
- Other Federal
- State
- Local Government
- Private/Unknown

0 0.5 1 2 Miles

Slipper Reservoir Site
Map 3

U.S. Department of Interior
Bureau of Land Management

Vale District
March 19, 2013

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SOLDIER CREEK ROAD MAINTENANCE MATERIAL SITES

Environmental Assessment DOI-BLM-OR-V060-2011-071

RESPONSE TO PUBLIC COMMENTS

Attachment 1

Prepared by:
U.S. Department of the Interior
Bureau of Land Management
Jordan Resource Area
100 Oregon Street
Vale, Oregon 97918

The Environmental Assessment (EA) was available for a 30-day public review period in April, 2013. The EA was posted on the BLM Vale District Internet with notification sent to interested parties. Comments were received from one group, one individual, and Oregon Department of Fish and Wildlife (ODFW). The comments and provided responses are as follows:

Oregon Department of Fish and Wildlife

Comments from Philip Milburn, Malheur District Wildlife Biologist, Oregon Department of Fish and Wildlife (ODFW):

1) *"BLM should analyze impacts to wildlife from resurfacing of the SCR and explain how this project meets BLM's Greater Sage-Grouse Interim Policies and Procedures IM 2012-043. The short term impact of hauling 264 loads of rock per mile and the long term impact of providing year round vehicle access on the SCR could result in significant impact to Core Habitat."*

BLM Response: The proposed action meets the criteria set forth in the "Travel Management" section of IM-2012-043 as the aggregate material will be used to resurface the Soldier Creek Road (SCR) within the existing road prism. The road was constructed in 1964 as a four-season road and this maintenance effort will not expand or extend the SCR. Planned material placement on the road equates to 28 miles of road, 16 feet wide with 8-inches of crushed rock on the surface. The road maintenance will require the placement of 61,350 cubic yards of crushed rock. This volume equates to 153, 12-yard dump truck loads. The work would require two, three-month seasons to complete.

Vehicles currently use the SCR year-round in all weather conditions. Vehicles negotiating areas where the road surface has deteriorated require longer travel time and may become stuck if ruts or puddles of standing water become too deep. These situations would mean that the vehicles are on the road longer than if road conditions allowed passage. Shorter duration travel time would be less impact to nearby wildlife.

2) *"The proposed and alternate sites should be evaluated based on the habitat conditions and other factors at the site and not solely on the Core Habitat maps. Department Staff can assist with site specific habitat assessments."*

BLM Response: Alternative sites were plotted on maps to determine proximity or location within Priority or Core habitat areas, Habitat Category 1. Sites that were located within Priority habitat were eliminated from further consideration. As per page 86 in Greater Sage-Grouse Conservation Assessment and Strategy For Oregon: A Plan to Maintain and Enhance Populations and Habitat (ODFW Assessment) (ODFW, 2011)[1]; *Habitat Category-1:* essential for Greater Sage-Grouse populations and is limited by the inability to mitigate for habitat loss in these areas in a reasonable time frame, and is irreplaceable, (i) The mitigation goal for Category 1 is no loss of either habitat quality or quantity. To that end, the proposed material sites were selected in Low-Density or "General" sage-grouse habitat, Habitat Category 2.

[1] http://www.dfw.state.or.us/wildlife/sagegrouse/docs/20110422_GRSG_April_Final%2052511.pdf

3) *"If this project moves forward the Department recommends BLM develop a mitigation plan for habitat impacts outside Core Habitat from the proposed material sites and the improvement to SCR. Impacts to Core Habitat should be avoided where a site specific assessment has confirmed it is essential, irreplaceable habitat."*

BLM Response: The proposed material sites are located in sage-grouse Habitat Category 2. BLM will reclaim the area around and in the vicinity of the material sites not required for routine road maintenance. The area will be re-vegetated with native seed as shown in Table 1.

Table 1 - Proposed Reclamation Seed Mixture For Proposed Material Sites

Species of Seed	Desired Seed Variety	Alternative	Pounds/Acre PLS
Bluebunch wheatgrass	'Anatone'	'Goldar' or 'Secar'	8.0
Bottlebrush Squirreltail			2.0
Hawksbeard	'Large-flowered modoc'	'Tapertip'	0.1 PLS
TOTAL			**10.1 lbs/ac PLS**

4) *"The BMPs need to be enhanced to reduce noise disturbance and habitat degradation:*
a. Site clearing, drilling, crushing, and continuous load and haul operations should be included with blasting as a temporary noise impact.
b. A timing restriction of March 1 to August 31 is recommended anywhere that temporary noise disturbance would impact Core Habitat. In addition, this restriction should be applied to the Black Butte site due to its proximity to Soldier Creek and the Brewster Reservoir site due to documentation of nesting and brood rearing in the area."
c. Weeds at the materials sites need to be surveyed, mapped, and controlled prior to any ground disturbing activities.

BLM Response: As each of the proposed sites are located within Habitat Category 2, BLM will implement an operational timing restriction of March 1 through June 30 as per page 86 of the ODFW Assessment [2].The duration of the site clearing, drilling, blasting, excavation, and crushing operation is approximately one month. The blasting event is instantaneous with a duration of less than one minute. Invasive species assessments will be completed after reclamation and weeds will be treated as necessary.

5) *The EA does not analyze noise disturbance, material site development activities, road improvement activity, and construction activity with regard to impacts to sage-grouse and "a variety of wildlife species in the area".*

BLM Response: Material site development activities will not occur within the operational timing restriction of March 1 through June 30. The nearest sage-grouse lek is two miles to the northwest of the site. The SCR has existed for more than 50 years with variable traffic frequency and periodic maintenance events. Noise and visual disturbance

[2] http://www.dfw.state.or.us/wildlife/sagegrouse/docs/20110422_GRSG_April_Final%2052511.pdf

associated with material site development may cause temporary displacement or temporary alteration to the activity level or behavior of some birds. The recommended decibel levels for persistent, long-term noise near lek and strutting areas ranges from 20 to 39 decibels[3] (*30 decibels has been equated to a whisper in a quiet library or totally quiet night in the desert*). Potential disturbance effects of material site development will not be long-term and will be negligible on sage-grouse individuals and populations because of the limited duration of the operations and distance from the lek. Eighty percent of sage-grouse nest within four miles of a lek, however, the habitat adjacent to the project site is poor nesting habitat due to limited sagebrush cover. Thus, impacts from noise to nesting sage-grouse are expected to be negligible.

Western Watersheds Project

Comments from Katie Fite, Biodiversity Director, Western Watersheds Project:

1) "Please assess the full array of direct, indirect and cumulative environmental impacts of the vast number of gravel pits, piles, quarry, and "community pits" that exist across the Vale District, and their impacts on water quality, erosion, habitat fragmentation, habitat loss for sensitive species, weed spread, facilitating road sprawl and other harmful road upgrade impacts- many other adverse effects. For example, the hideous gravel piles in Louse Canyon provide very visible intrusions in the sagebrush wild land, They are providing elevated sites for sage-grose [*sic*] predators. The habitat disturbance that they cause has adversely fragmented and reduced sage-goruse[*sic*] habitats, including breeding, brood rearing, wintering and other habitats. Plus these gravel developments are linked to extensive road upgrades, and also cheatgrass spread. Please be sure to include all of WWP and other comments and concerns submitted to you about gravel and road upgrades disturbing, and the combined effects of gravel development destroying sage-grouse and other wildlife habitats, as well as spreading cheatgrass."

BLM Response: The existing and future Community Pits, Common Use Areas, and authorized material sites are analyzed within the Environmental Impact Statement that culminated in the Southeastern Oregon Resource Management Plan and Record of Decision in 2002 (pg. 35). Since 2001, three BLM material sites have been developed for road maintenance purposes. The three sites were approximately 30 miles south of the SCR along Star Valley Road and were analyzed in EA-OR-030-08-006 in 2008. Cumulative effects anticipated at that time were analyzed in that Star Valley Road EA.

Sage-grouse comments have been addressed within the previous ODFW comments response.

The road project is considered periodic maintenance of an existing road with equipment activities and rock placement work remaining within the existing road prism.

[3] Recommended management strategies to limit anthropogenic noise impacts on greater sage-grouse in Wyoming, 2013, Patricelli, Blickley, and Hooper.
http://www.berrymaninstitute.org/files/uploads/Patricelli.pdf

Gene Bray (Advocates for the West)

Comments from Gene Bray, Meridian, Idaho (affiliated with Advocates for the West):

1) "BLM first needs to grapple with its out-of-control-road network, and act to reduce and minimize the footprint of roads and facilities, instead of take actions like this that will serve to expand that adverse footprint."

This project focuses on three potential sites to develop rock aggregate to be used in the SCR road maintenance project. Maintenance on the SCR will be within the existing road prism (about 16 feet wide) and will not be an expansion or extension of the road. Access to the potential material sites will be along existing routes, however, those routes will be plated with rock material to prevent erosion and provide a measure of dust control during the maintenance project.

2) "We are very concerned about the potential arsenic contamination of waters including downstream in Owyhee River and Reservoir, and potentially highly variable amounts of arsenic in different layers or strata and at different sites, and many other adverse impacts." "What are the arsenic and other pollutant levels at present downstream - as in Owyhee Reservoir? How many piles and how many linear miles (and what volume) of gravel is out there on Vale lands at present - and is leaching arsenic? What is the gravel road and gravel pit/pile runoff/contamination./pollution potential?"

See response below.

3) "The EA itself focuses qualitatively on the water contaminant: suspended sediment, but fails to mention arsenic in any form other than admitting it is a trace element ubiquitous in the area's geology. Past actions at Antelope and Disaster pits have indicated an order of magnitude variation in possible arsenic contamination levels and under BMP, extra remediation and expense when the disturbed site drains directly into an intermittent stream, Field Ck[sic], as is the case at Disaster pit. The BLM claims no evidence of downstream transported arsenic and has not taken simple steps to validate that assertion by taking pre-pit baseline samples of fines and water below Disaster Spring and subsequent periodic samples during active drainage and low water conditions."

See response below.

4) "EA section 4. and subsection 4.C address the criteria and process to winnow 10 possible sites down to the surviving three. Unfortunately the arsenic level profile by depth for each deposit considered was not assayed and the BLM is essentially betting the ranch that none of the ten is at or approaching a 20 ppm, "worry" threshold. The cost of re-sequestering a hot pit, two aggregate piles, etc., and the lost initial project cost could approach $1M."

See response below.

5) "While the footprint of the disturbed sites is defined, the amount of aggregate (and any proposed split between 1-inch minus and 3-inch minus) is not provided which has a great deal to do with the

risk associated with conversion of a weathered, sequestered, arsenic tainted deposit into many orders of magnitude more fresh surface area available for leaching for the next 100 years or so."

See response below.

6) "There are emerging scientific findings related to arsenic uptake, transport and accumulation in plants. Rice, Brassicaceae family, and to a lesser extent Asteraceae family of vegetables are capable of metabolizing some forms of arsenic from soil or water. A few species have hyperaccumulation characteristics. Some merely accumulate while others precipitate or tolerate the various arsenic forms when available. Some bent grasses (agrostis) are serious hypers. There is an As 1 ppm (dry weight) health limit for human consumption and 5-6 ppm As readings in the Owyhee Reservoir (per Jeff Reavis, BOR Dec 2009). The outlook for irrigation in the 120,000 acres in Oregon and Idaho supplied by the Owyhee Project is arguably exposed to more limitations."

See response below.

7) "The cumulative, long-term impact of seven (since 2007 and counting) approved and proposed gravel pits, once completed will total about 300,000 cubic yards of gravel initially concentrated but eventually widely dispersed. The new surface areas exposed to the elements could equal the weathered surfaces of the undisturbed rhyolite and basalt deposits existing in the entire Owyhee watershed. In this complex and evolving situation and with water supply and quality acknowledged a serious problem for the future, it is necessary at this time to err on the side of caution. This EA glosses over too many important details and considerations. It also has been presented in a way that avoids serious consultation with water quality professionals in other agencies."

See response below.

BLM Response to Arsenic Concerns: The following narrative combined with narrative from the EA (page 24) will serve as a response to all questions submitted referencing arsenic within the Owyhee River system.

The Owyhee River watershed is a northwest-trending basin that drains approximately 11,000 square miles (7.1 million acres) from northern Nevada, through southwestern Idaho, and into eastern Oregon. The proposed action analyzed 30 acres of disturbance associated with the rock material sites. The rock would be crushed at the material site, transported, and placed on the SCR. The SCR maintenance is planned to cover 28 miles of existing, constructed road with a width of about 16 feet which equates to 54 acres. The maximum acreage of rock exposure associated with this project is about 90 acres. The 90 acres is equivalent to 0.001% of the surface area of the Owyhee River basin.

Rock samples collected from each of the three proposed sites were analyzed by a commercial laboratory to determine arsenic (As) content. The Black Butte site result was 3.92 ppm As, the Slipper Reservoir site was 2.15 ppm As, and the Brewster Reservoir site was 4.25 ppm As. The samples were collected as a composite from both drill cuttings and, in the case of Black Butte, an excavated trench. Sample depths ranged to 50 feet in the drill holes and 4 to 9 feet in the trenches. Arsenic speciation was not determined as part of the analysis.

BLM acknowledges that numerous studies across the western United States and, in particular, areas of Oregon, Idaho and Nevada associated with the Owyhee River basin have shown that arsenic is commonly a source of water contamination. Literature research indicates that arsenic is a trace element in naturally occurring water sources in areas ranging from the northern Nevada to southwestern Idaho and many areas in Oregon. As discussed in the EA, the geologic history of northern Nevada and southeast Oregon is characterized by regional volcanism that emplaced the basalts, rhyolites, and tuffs that dominate the bedrock composition of the Owyhee River basin. After the volcanic eruptive cycle, remnant subsurface heat sources created an environment of vents, fumaroles, and hot springs that allowed mobilization, concentration and deposition of a variety of minerals and elements that include trace elements such as arsenic. This type of remnant volcanic system allows the deposition of elements at concentrations elevated enough to be considered a mineral deposit.

The U.S. Geological Survey (USGS) maintains a spatial database which is a collection of information regarding mineral resources and deposits within the Continental United States and the globe4. The Mineral Resources Data System (MRDS) builds upon information collected by the former U.S. Bureau of Mines and is continually updated with more recent information. Although some of the location data is imprecise, the commodity information is generally accurate. The data for the Owyhee River drainage shows about 10 clusters in Nevada, Idaho, and Oregon with a high density of gold, silver, mercury, tungsten, antimony, uranium, and geothermal occurrences. Each cluster contains at least ten individual sites where mineralization has been located or reported. Concentrations of arsenic in these types of mineral deposits can range from 10 to greater than 24,000 ppm As5.

In 2001 through 2002, the USGS completed a study entitled "Reconnaissance of Chemical and Biological Quality in the Owyhee River from the Oregon State Line to the Owyhee Reservoir, Oregon, 2001-02"6. Arsenic concentrations from water sample analyses from six sample sites along the Owyhee River ranged from less than the detection limit to 3 to 11 ppm. The higher concentration was detected downstream of Rome, Oregon at the confluence with Bull Creek. A sample collected where the Owyhee River enters Oregon from Idaho had a concentration of 6 ppm. USGS also sampled stream bottom sediments which showed a range of 6 to 9.5 ppm As with a median value of 7.5 ppm As. Water discharge from regions of the Owyhee River drainage with anomalous arsenic concentrations such as the Independence Mountains in northern Nevada7 and the Silver City Range in Idaho potentially contribute higher concentrations to the system than unaltered volcanic rocks in the vicinity of the proposed project.

A 1985 USGS Water-Supply Paper by John D. Hem states that the average arsenic concentration of the Earth's igneous rocks is 1.8 parts per million (ppm) 8 which could

[4] http://tin.er.usgs.gov/mrds/
[5] http://www.nbmg.unr.edu/dox/mla/mla_17-92.pdf
[6] http://pubs.usgs.gov/wri/2003/4327/report.pdf
[7] http://www.nbmg.unr.edu/dox/mla/mla_17-92.pdf
[8] http://pubs.usgs.gov/wsp/wsp2254/pdf/wsp2254a.pdf

also be interpreted to be the background for the volcanic rocks that comprise most of the Owyhee river drainage.

In 2001, the United States Environmental Protection Agency (EPA) adopted a standard for arsenic in drinking water of 0.010 ppm as the maximum contaminant level (mcl). Cities such as Vale, Oregon9; Portland, Oregon10; Fruitland, Idaho11; Fallon, Nevada12; and five counties in Idaho13 typically exceed that standard in the municipal drinking water supplies.

In conclusion, the BLM has proposed the development of three 10-acre sites for the extraction of volcanic rock to be crushed for aggregate to complete maintenance of the SCR. The SCR was constructed in the early 1960s and BLM and the Malheur County Road Department have jointly maintained the road to a designed standard as a four season access road to remote areas of Malheur County. BLM has not proposed to expand or extend the SCR and all maintenance work will be within the existing road prism. One existing, two-track road will be upgraded for trucks to the proposed Slipper Reservoir site. The total acreage associated with the project is 90 acres; 30 acres for the three material sites and about 60 acres of rock placement on existing roads.

The contribution of arsenic (or any trace element) to the 7 million-acre Owyhee River system from this proposed 90-acre project is immeasurable. A representative sample from each of the three proposed material sites was collected and submitted to an established, commercial analytical laboratory. The results from the analyses are not considered anomalous for volcanic rocks of the region. The contribution of trace elements to the Owyhee River system from the proposed project would be immeasurable as compared to the contribution from areas with known mineral deposits, soil and dust derived from the volcanic rocks that is transported by wind to the drainage system, geothermal and groundwater discharge into the river, and precipitation discharge from drainage and canyon cliff walls.

[9] http://www.epa.gov/nrmrl/wswrd/dw/arsenic/pubs/fs/fsValeOR.pdf
[10] http://or.water.usgs.gov/pubs_dir/Pdf/98-4205.pdf
[11] http://www.epa.gov/nrmrl/wswrd/dw/arsenic/pubs/fs/fsFruitland.pdf
[12] http://pubs.usgs.gov/wri/2001/4130/report.pdf
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